

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.

B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022

SEMESTER - III

20USTCT3005 - Distribution Theory-II

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section A

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. What is the distribution of X^2 if X follows Standard Cauchy?
2. Compute skewness and kurtosis of Gamma Distribution.
3. Derive the mode of the lognormal distribution.
4. Derive the central moments of Weibull distribution.
5. Quote the Mode of the chi square distribution with n degrees of freedom.
6. Show that, student's t - distribution is symmetric .
7. Describe the point of inflexion of F-distribution.
8. Determine the single order statistic.

Section B

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Show that, the ratio of two independent standard normal distribution follows Cauchy Distribution.
10. Compute mean, variance, skewness and kurtosis of Logistic distribution.
11. Determine the derivative of the Chi square distribution.
12. If the random variables X_1 and X_2 are independent and follow chi-square distribution with n d.f; Show that $\frac{\sqrt{n}(X_1 - X_2)}{2\sqrt{X_1 X_2}}$ is distributed as student's t with n degrees of freedom.
13. Determine the r^{th} and s^{th} order statistics.

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